

DEVBOARD-G1

USERS MANUAL

**Development Platform for uOLED-XX-G1
Series Display Modules**

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4D Systems



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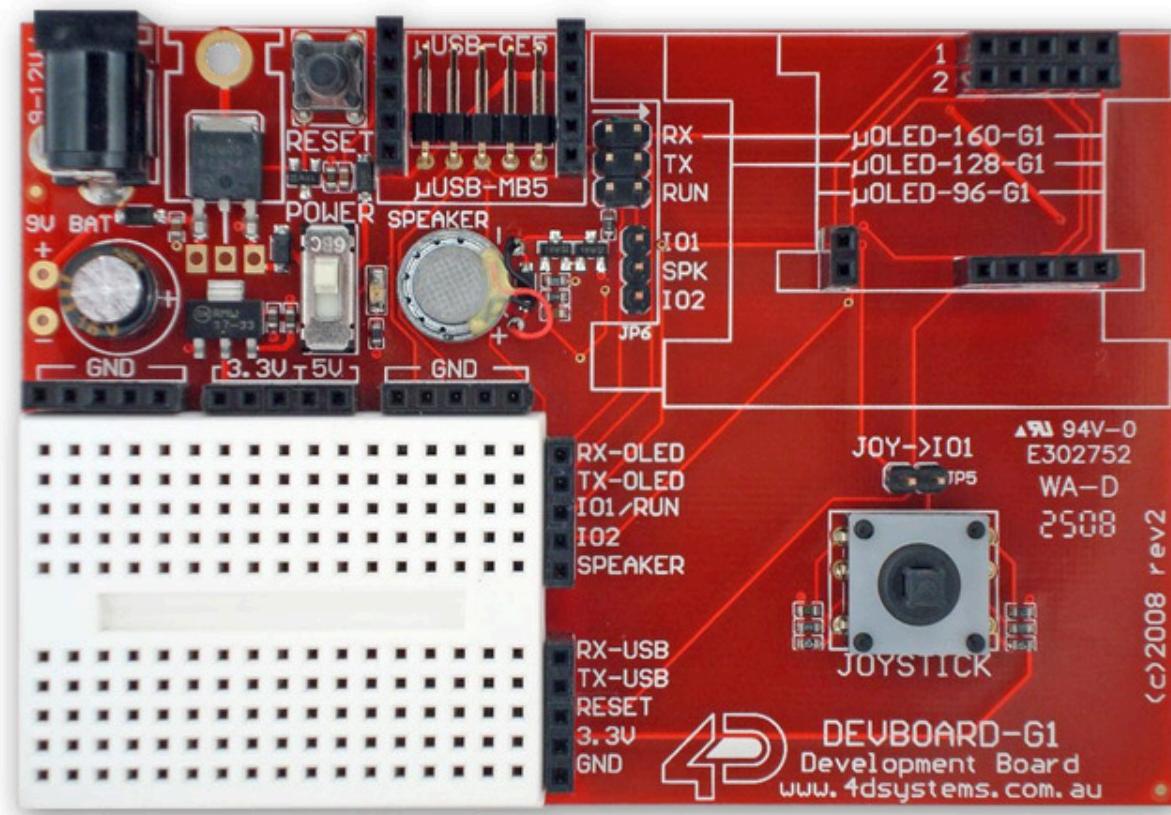
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1 Introduction

The **DEVBOARD-G1** is a compact and low-cost all in one development platform for the µOLED-96-G1, µOLED-128-G1 and the µOLED-160-G1 series of 'SMART' display modules. The feature packed board make an ideal platform for learning and experimenting with the display modules as well as the **4DGL** programming language.





2 Features

This is what's included:

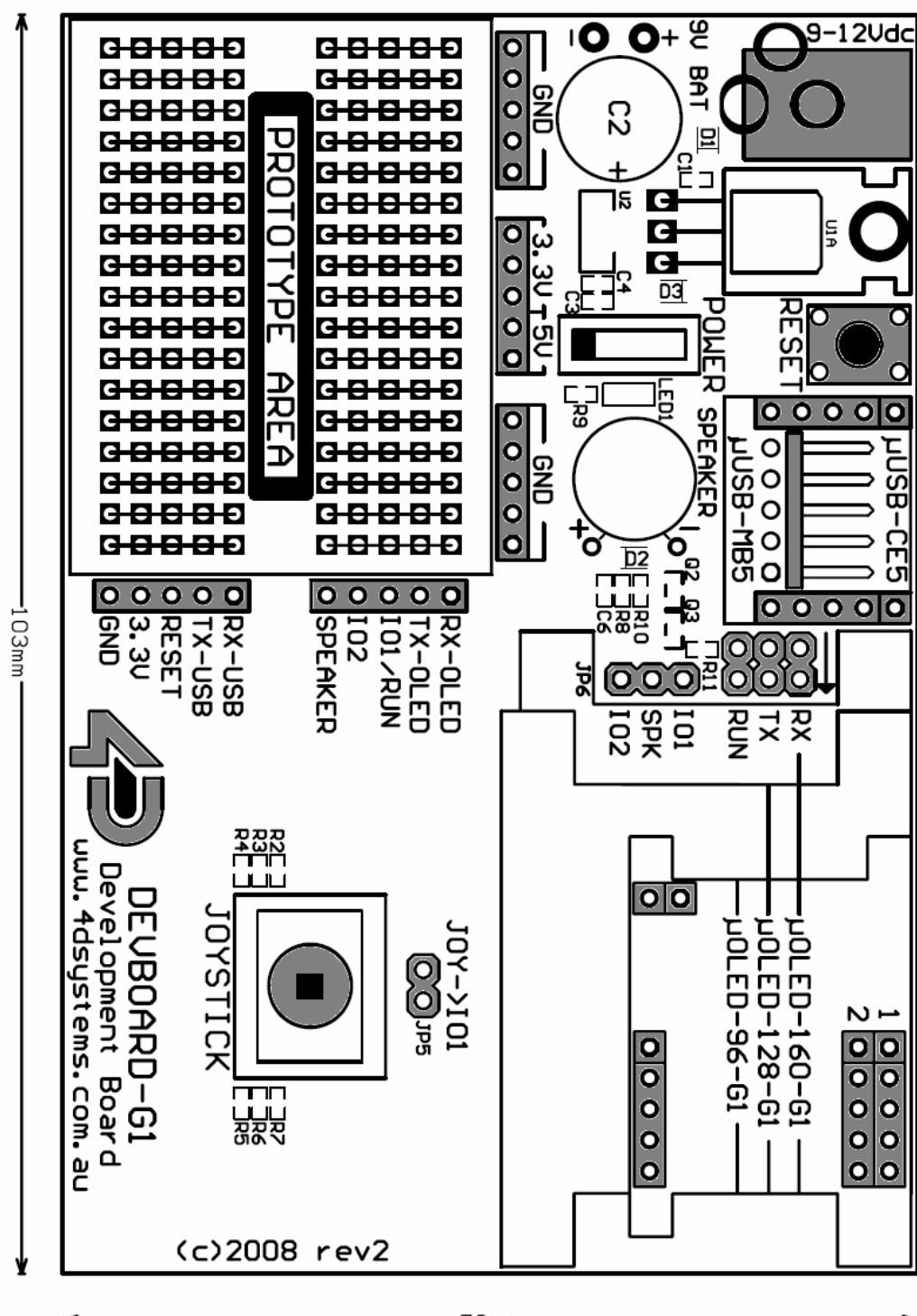
- Onboard DC-Jack (2.5mm centre positive) for wall plug adaptor (9V to 12V DC) with built in switch for automatic battery cut-off to prevent dual connection.
- PCB connections for a 9.0 Volt battery flying lead connector (not included).
- Onboard 5.0 Volt and 3.3 Volt regulators that can supply up to 500mA current (combined) for the display modules and user circuits.
- Power Switch and LED indicator.
- 8 Ohms micro speaker with darlington drive for sound and music.
- Push button RESET switch.
- 2 x 5-pin female headers for **μUSB-MB5** (USB to RS232 bridge) module for **PmmC** or **4DGL** user code downloads.
- 1 x 5-pin male header for **μUSB-CE5** (USB to RS232 bridge) module for **PmmC** or **4DGL** user code downloads.
- 2 x 5-pin female headers for **μOLED-128-G1** and **μOLED-160-G1** modules.
- 1 x 5-pin and 1 x 2-pin female headers for **μOLED-96-G1** module.
- 5 position multi-way switch Joystick.
- 170 tier solder-less breadboard for quick circuit prototyping.
- Set of 40 pieces (8 sets of 5 each) of colour coded pluggable jumper-wires. 5 pieces each of following lengths: 2, 5, 10, 15, 20, 25, 50 and 75 mm.



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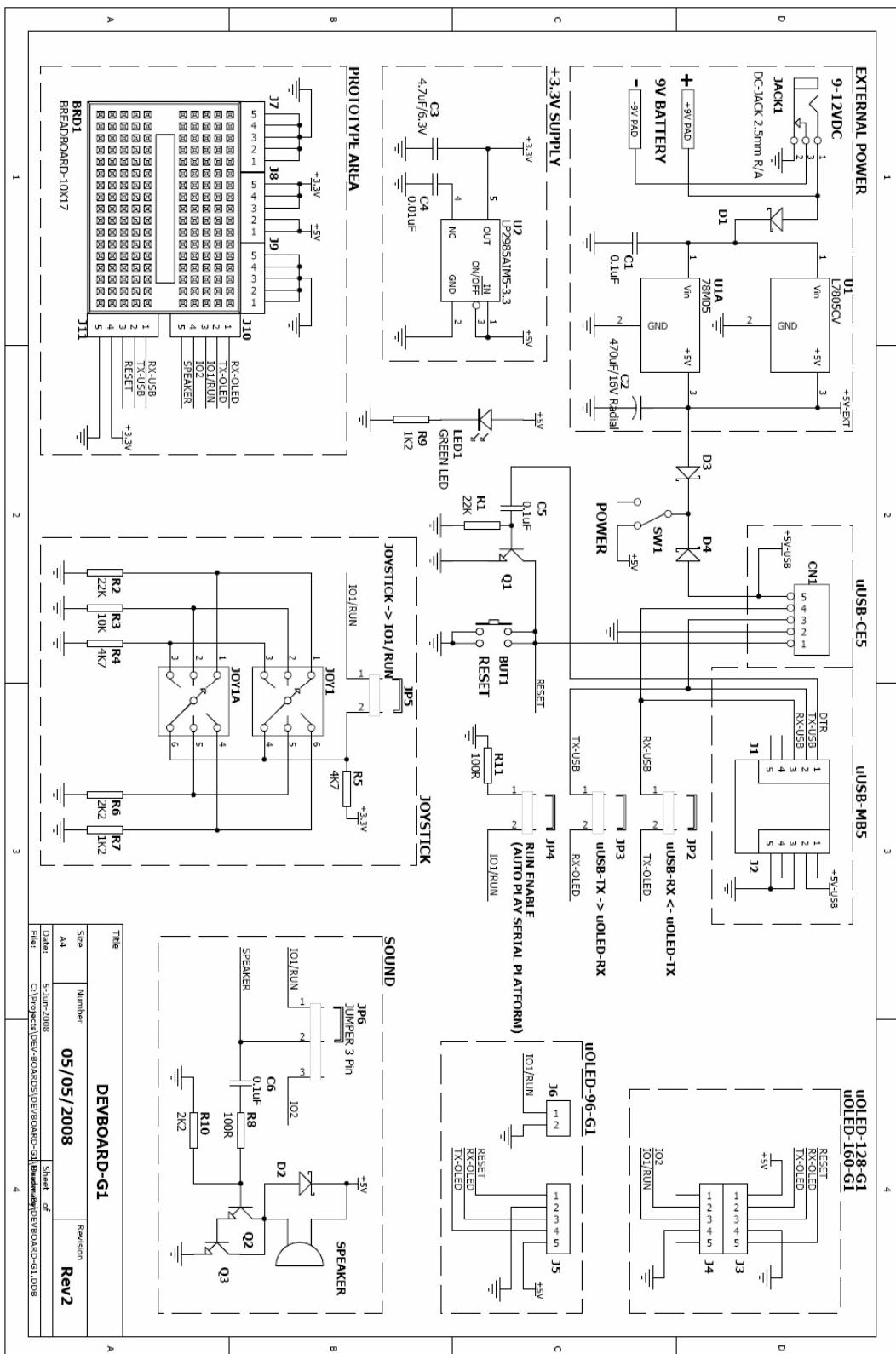
3 Hardware Description





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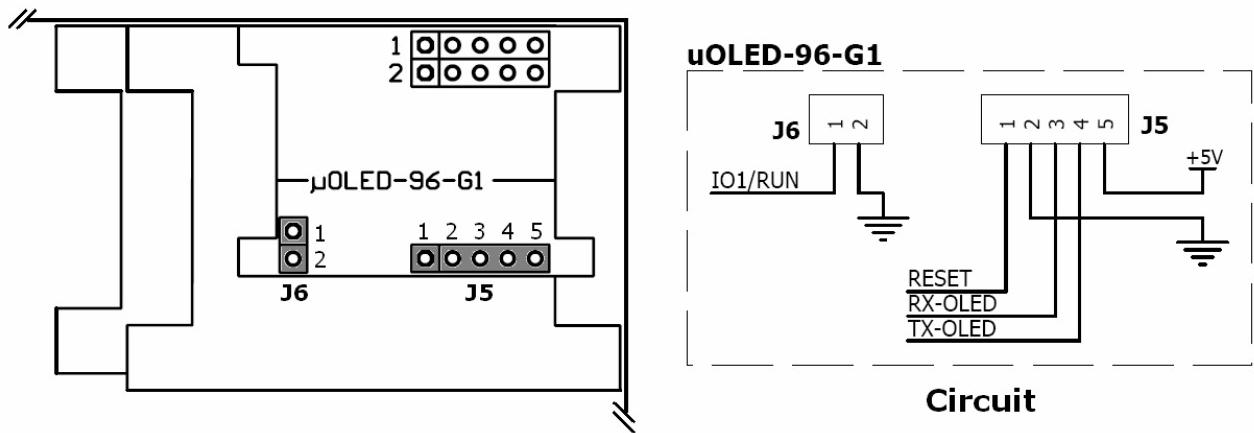
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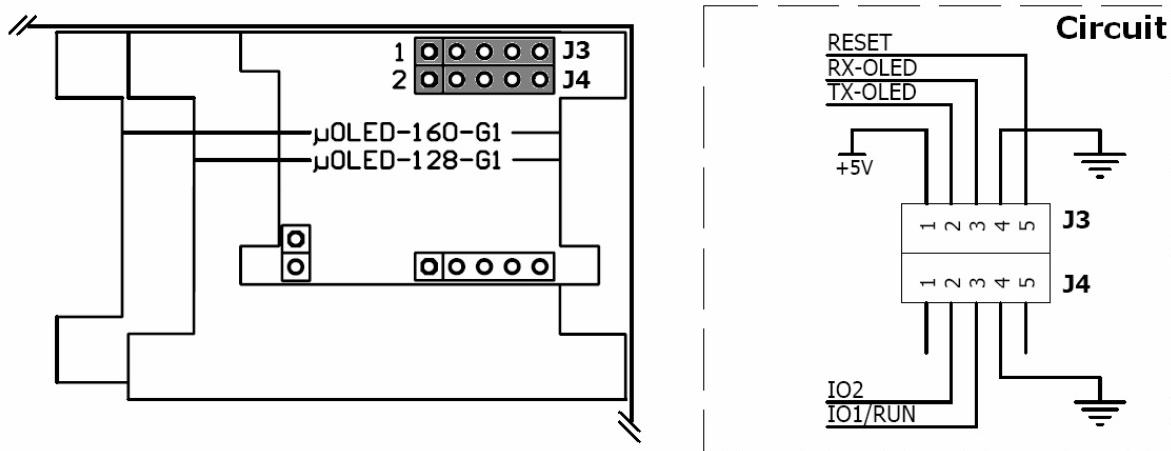
3.1 µOLED-96-G1 Module Connections

The following diagram illustrates the connectors (grey highlight) used to insert the **µOLED-96-G1** display module onto the DEVBOARD-G1.



3.2 µOLED-128-G1 & µOLED-160-G1 Module Connections

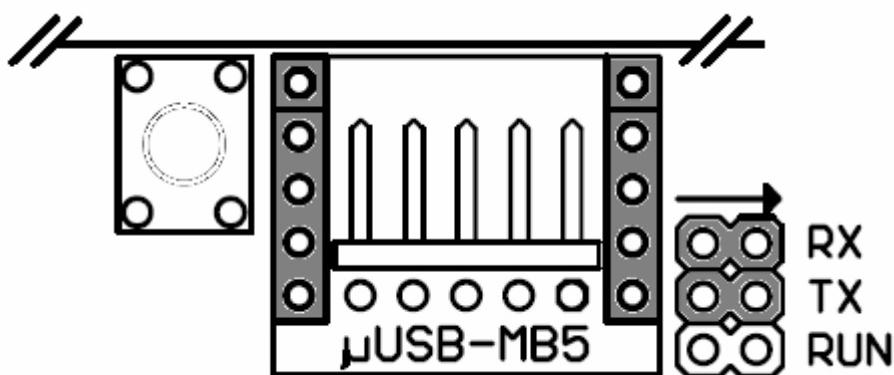
The following diagram illustrates the connectors (grey highlight) used to insert the **µOLED-128-G1** and the **µOLED-160-G1** display modules onto the DEVBOARD-G1.





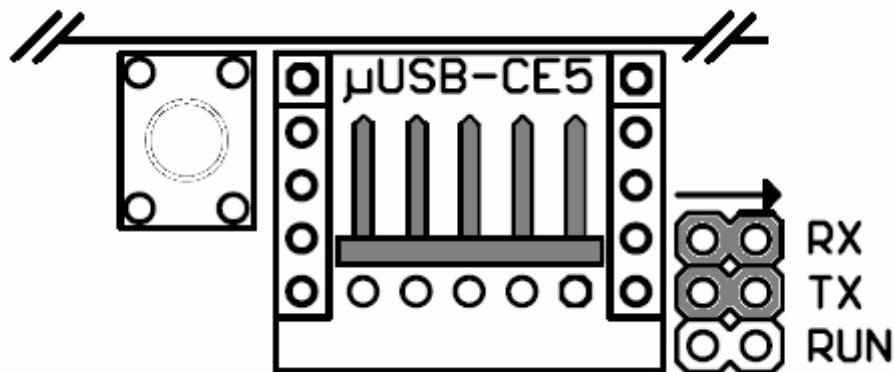
3.3 µUSB-MB5 (USB-Serial) Module Connection

The following diagram illustrates the 2 x 5-pin female headers (grey highlight) used to insert the **µUSB-MB5** module onto the DEVBOARD-G1. Shorting the **RX** and the **TX** jumpers with shunts will allow a direct connection of the TX/RX signals from the µUSB-MB5 to the µOLED-96/128/160-G1 modules. The µUSB-MB5 also supplies the DEVBOARD-G1 with 5 Volts power.



3.4 µUSB-CE5 (USB-Serial) Module Connection

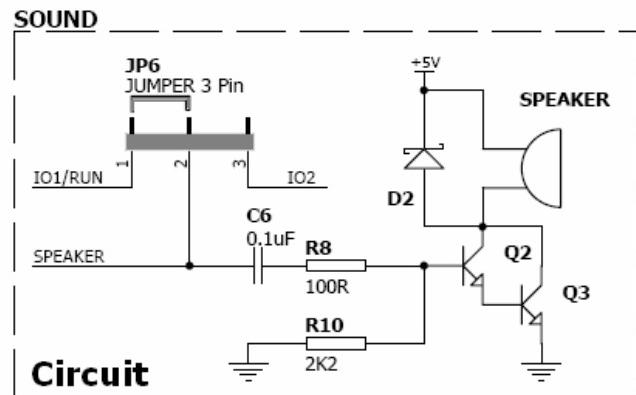
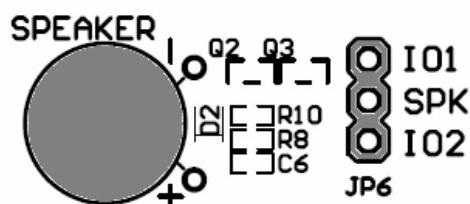
The following diagram illustrates the 5-pin right angle male header (grey highlight) used to insert the **µUSB-CE5** module onto the DEVBOARD-G1. Shorting the **RX** and the **TX** jumpers with shunts will allow a direct connection of the TX/RX signals from the µUSB-CE5 to the µOLED-96/128/160-G1 modules. The µUSB-CE5 also supplies the DEVBOARD-G1 with 5 Volts power.





3.5 Speaker – for Sound and Music Generation

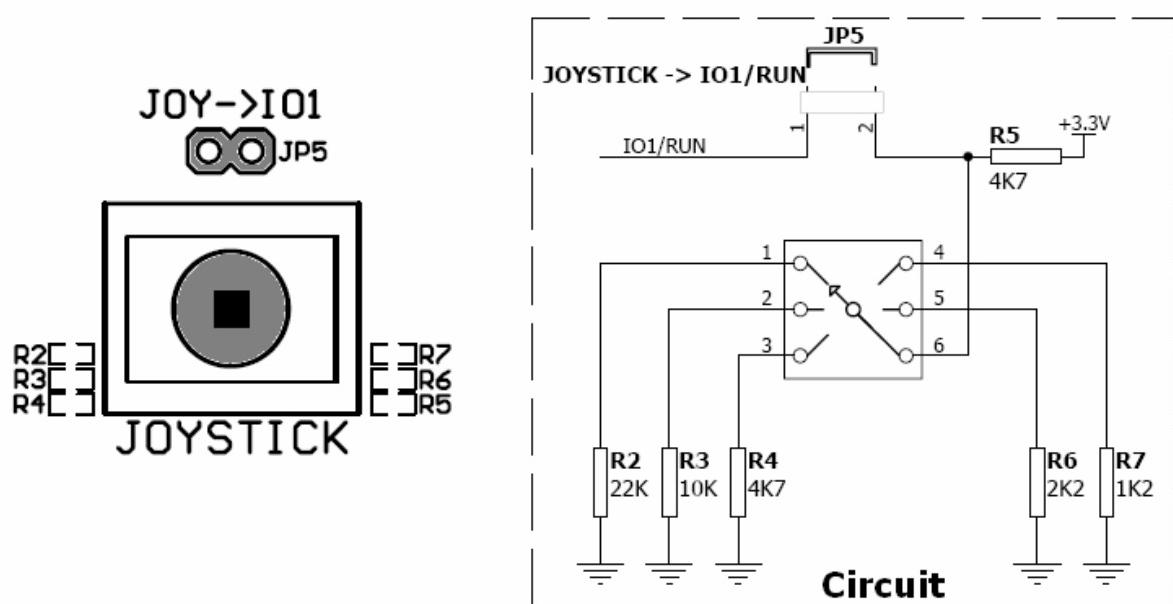
The **μOLED-96/128/160-G1** display modules, under **4DGL** program applications, are capable of generating complex sounds and music from their respective I/O pins. Using a shunt and shorting any of the 2 pins of the 3-pin jumper (**JP6**) will redirect the output of either IO1 or the IO2 pins from the display module to the speaker circuit. The **μOLED-96-G1** module has only a single I/O pin (IO1), therefore only the IO1-SPK pins can be shorted and are usable. The **μOLED-128-G1** and the **μOLED-160-G1** modules have 2 I/O pins (IO1 and IO2) that can be used to generate sound so either IO1-SPK or IO2-SPK pair of pins can be shorted and used.





3.6 Joystick – 5 Position Multi Switch

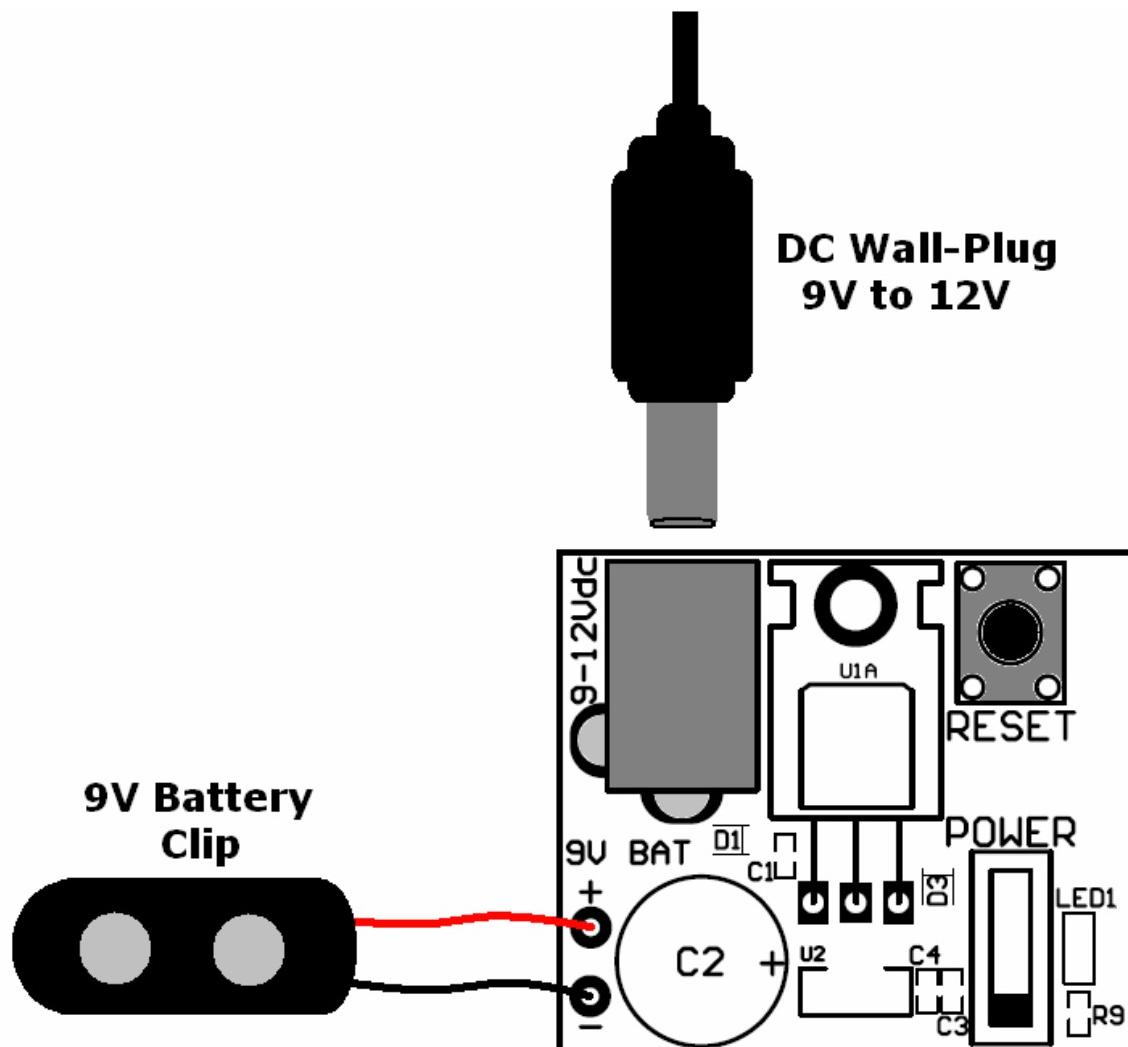
The Joystick is a 5 position multi switch and each position connects to a junction of a resistor ladder network that forms a voltage divider. The IO1 pin of **μOLED-96/128/160-G1** display modules can be programmed as an Analogue to Digital (A2D) converter input under 4DGL. Utilising the A2D feature each individual switch position voltage value can be read and decoded. Using a shunt and shorting the 2-pin jumper (**JP5**) will directly connect the output of the joystick voltage divider circuit to the IO1 pin of the display modules.





3.7 Power Supply

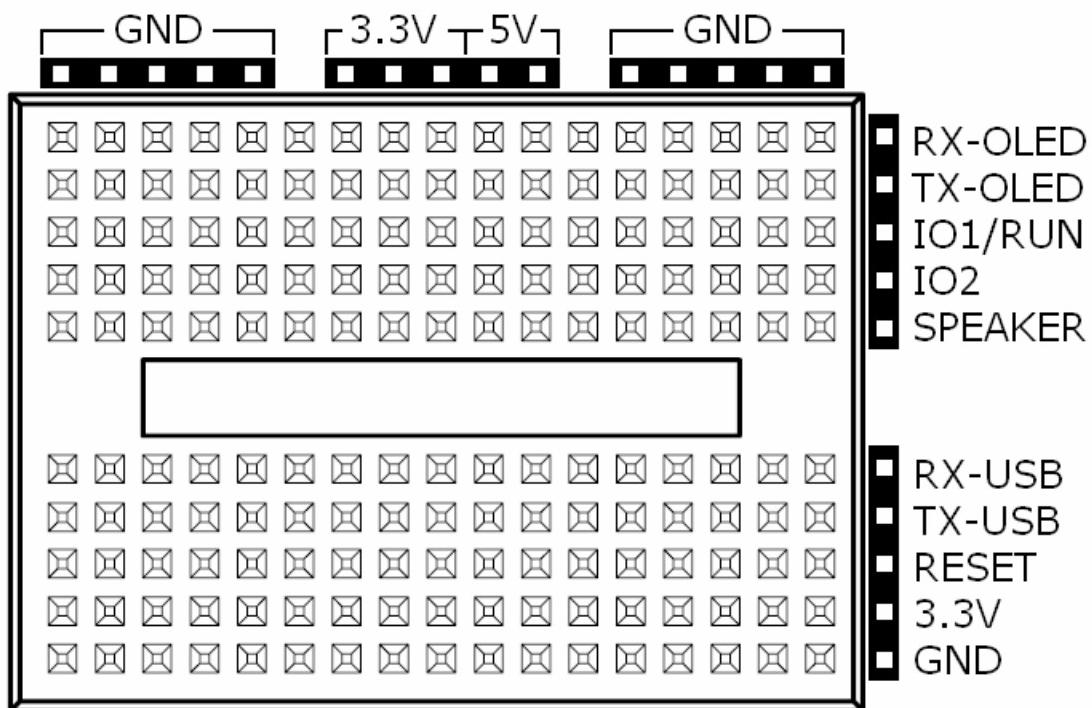
The DEVBOARD-G1 can be powered by the 5 Volts supply provided by the μ USB-MB5 or the μ USB-CE5 modules or it can be powered by an external wall-plug (9 Volts to 12 Volts DC) centre tap positive. The board also has provisions for soldering a flying lead 9V battery clip. Both the wall plug and the 9V battery clip are not provided.





3.8 Solderless Breadboard – Circuit Prototyping

The DEVBOARD-G1 is supplied with a 170 tier (2 sets of 5 rows x 17 column sockets) solder-less breadboard for circuit prototyping purposes. Each column of 5 sockets has metal strips inside it that connect the sockets together which simplifies hooking up components. It is also supplied with 40 pieces of jumper wires of various lengths that can be used join signals to external components placed on the breadboard.





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with µOLED-96-G1 and µUSB-MB5



with µOLED-128-G1 and µUSB-CE5



with µOLED-160-G1 and µUSB-MB5



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4 Related Products and Software Tools

- **μUSB-MB5**

www.4dsystems.com.au/prod.php?id=18



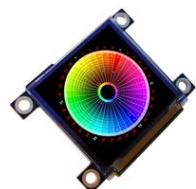
- **μUSB-CE5**

www.4dsystems.com.au/prod.php?id=19



- **μOLED-96-G1**

www.4dsystems.com.au/prod.php?id=9



- **μOLED-128-G1**

www.4dsystems.com.au/prod.php?id=28



- **4DGL Workshop (free compiler and editor software tool)**

www.4dsystems.com.au/developers/index.php

- **4D Graphics Composer (free software tool)**

www.4dsystems.com.au/downloads/Graphics_Composer/

- **Support Forum**

www.websitetoolbox.com/tool/mb/4d